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ENTOMOLOGY

2353. Alfaro, R.I., J.H. Borden, L.J. Harris, W.W. Nijholt and L.H. McMullen. 1984. Pine oil, a feeding deterrent for the white pine weevil, *Pissodes strobi* (Coleoptera: Curculionidae). Can. Ent. 116: 41-44.

2354. Alfaro, R.I., T.L. Shore and E. Wegwitz. 1984. Defoliation and mortality caused by western spruce budworm: variability in a Douglas-fir stand. J. Ent. Soc. B.C. 81: 33-38.

2355. Andrews, R.J. 1984. Surveys and actions to combat spread and establishment of European pine shoot moth in British Columbia. 1926-1982. FIDS Report 84-2. Can. For. Serv. Pac. For. Res. Cent. 9 p.

2356. Barclay, H.J. 1984. Demographic consequences of monogamy and polygamy for a sterile release program. Protection Ecology 6: 209-217.

2357. Barclay, H.J. 1984. Pheromone trapping models for pest control: effects of mating patterns and immigration. Res. Popul. Ecol. 26, 303-311.

2358. Barclay, H.J. and P. Van Den Driessche. 1984. Pheromone trapping for male annihilation: a density dependent model. Prot. Ecol. 7: 281-289.

2359. Cunningham, J.C. and R.F. Shepherd. 1984. Chapter 63 *Orgyia pseudotsuga* (McDunnough) Douglas-fir Tussock Moth (Lepidoptera: Lymantriidae). pp. 363-367. In:Biological Control Programs against Insects and Weeds in Canada 1969-1980.

2360. Embree, D.G. and I.S. Otvos. 1984. *Operopthera brumata* (L.), Winter moth (Lepidoptera: Geometridae). pp. 353-357. *In*: Kelleher, J.S. and M.A. Hulme (eds) Biological Control Programmes against Insects and Weeds in Canada. 1969-1980.

2361. Erickson, R.D. 1984. Western hemlock looper. PFRC Forest Pest Leaflet No. 21 (Revised). 4 p.

2362. Erickson, R.D. 1984. Larch sawfly. PFRC Forest Pest Leaflet 12 (Revised). 4 p.

2363. Gray, T.G., K.N. Slessor, G.G. Grant, R.F. Shepherd, E.H. Holsten and A.S. Tracey. 1984. Identification and field testing of pheromone components of *Choristoneura orae* (Lepidoptera: Tortricidae). Can. Ent. 116: 51-56.

2364. Gray, T.G., K.N. Slessor, R.F. Shepherd, G.G. Grant, and J.F. Manville. 1984. European pine shoot moth, *Rhyacionia buoliana* (Lepidoptera: Tortricidae): Identification of additional pheromone components resulting in an improved lure. Can. Ent. 116: 1525-1532.

2365. Griffiths, K.J., J.C. Cunningham and I.S. Otvos. 1984. Ch. 58. *Neodiprion sertifer* (Geoffroy), European pine sawfly (Hymenoptera: Diprionidae) pp. 331-340. *In*: Kelleher, J.S. and M.A. Hulme (eds.) Biological Control Programmes against Insects and Weeds in Canada. 1969-1980.

2366. Hulme, M.A. and G.W. Green. 1984. Chapter 45. Biological control of forest insect pests in Canada 1969-1980: Retrospect and prospect. pp. 215-227. *In*: Kellaher, J.S. and Hulme, M.A. (eds) Biological Control Programmes against insects and weeds in Canada 1969-1980.

2367. Humphreys, N. 1984. Satin moth. PFRC Forest Pest Leaflet No. 38 (Revised). 4 p.

2368. Kelleher, J.S. and M.A. Hulme, (eds) 1984. Biological control programmes against insects and weeds in Canada 1969-1980. Commonwealth Agricultural Bureaux, London. 410 pages.

2369. Linton, D.A., L. Safranyik, H.S. Whitney and O.J. Spanier. 1984. Possible genetic control of color morphs of spruce beetles. Canadian Forestry Service Research Notes 4(4): 52-53.

2370. Moeck, H.A. and L. Safranyik. 1984. Assessment of predator and parasitoid control of bark beetles. Can. For. Serv., Pac. For. Res. Cent., Info. Rep., BC-X-248.

2371. Otvos, I.S. and F.W. Quednau. 1984. Ch. 49. *Coleophora laricella* (Hubner) larch casebearer (Lepidoptera: Coleophoridae) pp. 281-284. *In*: Kelleher, J.S. and M.A. Hulme (eds.) Biological Control Programmes against Insects and Weeds in Canada. 1969-1980.

2372. Peet, F.G. and T.S. Sahota. 1984. A computer-assisted cell identification system. J. Analyt. Quantit. Cytol. 6: 59-70.

2373. Sahota, T.S., F.G. Peet. 1984. Reproduction related cell differentiation as revealed by analysis of digital cell images. Advances in Invert. Reproduction 3: 630.

2374. Sahota, T.S., F.G. Peet and P.H. Bartels. 1984. Progress toward early detection of population quality differences in bark beetles. Can. Ent. 116: 481-486.

2375. Schooley, H.O., J.W.E. Harris and B. Pendrel. 1984. Chapter 46: *Adelges piceae* (Ratz.), Balsam Woolly Adelgid (Homoptera: Adelgidae) pp 229-234. *In*: Kelleher, J.S. and M.A. Hulme (eds). Biological Control Programmes against Insects and Weeds in Canada 1969-1980.

2376. Shepherd, R.F. and J.C. Cunningham. 1984. Chapter 48. *Choristoneura occidentalis* Freeman, Western Spruce Budworm (Lepidoptera: Tortricidae) pp 277-279. *In* Biological Control Programmes against Insects and Weeds in Canada 1969-1980.

2377. Shepherd, R.F., I.S. Otvos, and R.J. Chorney. 1984. Pest management of Douglas-fir tussock moth (Lepidoptera: Lymantriidae): A sequential sampling method to determine egg mass density. Can. Ent. 116: 1041-1049.

2378. Shepherd, R.F., I.S. Otvos, R.J. Chorney, and J.C. Cunningham. 1984. Pest management of Douglas-fir tussock moth (Lepidoptera: Lymantriidae): prevention of an outbreak through early treatment with a nuclear polyhedrosis virus by ground and aerial applications. Can. Ent. 116: 1533-1542.

2379. Shore, T.L., and J.A. McLean. 1984. The effect of height of pheromone-baited traps on catches of the ambrosia beetle *Trypodendron lineatum* (Olivier). J. Entomol. Soc. Brit. Columbia 91: 17-18.

2380. Thomson, A.J., R.F. Shepherd, J.W.E. Harris and R.H. Silversides. 1984. Evaluating weather effects on western spruce budworm by analysis of long-term weather records. Can. Ent. 116: 375-381.

2381. Thomson A.J. and D.M. Shrimpton. 1984. Weather associated with the start of mountain pine beetle outbreaks. Can. J. For. Res. 14(2): 255-258.

LAND CLASSIFICATION

2382. Oswald, E.T. and J.P. Senyk. 1984. Mapping forest landscapes in the Yukon Territory, Canada. *In* Forest Soils and Treatment Impacts. Proc. 6th North American Forest Soils Conf. Knoxville, Tenn. p. 437 (abstract only).

2383. Oswald, E.T., J.P. Senyk and B.N. Brown. 1984. Vegetation studies in the Yukon Territory. *In*: Inventorying Forest and other Vegetation of the High Latitude and High Altitude Regions. Proc. International Symposium of Society of American Foresters Regional Technical Conf. pp. 119-126.

2384. Stanek, W. and I.A. Worley. 1983. A terminology of virgin peat and peatlands. Proc. Int. Symposium on Peat Utilization (C. Fuchsman and S.A. Spigarelli, editors), Bemidji State University, Bemidji, Minnesota, October 10-13, 1983. pp 73-102.

MISCELLANEOUS

2385. Hall, A.A. and W.J. Bloomberg. 1984. A power-driven increment borer. For. Chron.: 356-357.

2386. Leadem, C.L. and D.G.W. Edwards. 1984. A multiple-compartment tree seed tumbler-drier. USDA, For. Serv., Tree Planters Notes 35(3): 23-25.

2387. Oakley, P. and G.H. Manning. 1984. An analysis of two trials of a portable shear-type residue processing system. Can. For. Serv., Pac. For. Res. Cent., Inf. Rep., BC-X-249.

2388. Pang, P.C.K. 1984. Absorption of gaseous ammonia by Douglas-fir. Soil Sci. Soc. Am. J. 48: 1178-1181.

2389. Pang, P.C. and C.M. Cho. 1984. Oxygen consumption and denitrification acitivity of a conifer forest soil profile. Soil Sci. Soc. Am. J. 48: 393-399.

2390. Robinson, G. 1984. Impact of heavy fuel oil and natural gas prices on the value of biomass delivered to British Columbia pulp mills. Can. For. Serv., Pac. For. Res. Cent., Info. Rep. BC-X-256.

2391. Sinclair, A.W.J. 1984. Recovery and transport of forest biomass in mountainous terrain. Can. For. Serv., Pac. For. Res. Cent., Inf. Rep., BC-X-254.

2392. Sinclair, A.W.J. 1984. Processing biomass in a central location with the separator shear system. Can. For. Serv., Pac. For. Res. Cent., Inf. Rep., BC-X-255.

2393. Sinclair, A.W.J. and G.H. Manning. 1984. Recovery of cable-logging residues - a source of fibre. Proc. TAPPI Pulping Conference, Nov. 12-14, 1984, San Francisco pp 549-553.

2394. Smith, R.B., P.R. Commandeur, and M.W. Ryan. 1984. Vegetative succession, soil development and forest productivity on landslides, Queen Charlotte Islands, British Columbia, Canada. Pages 109-116 in Proceedings of the IUFRO Symposium on Effects of Forest Land Use on Erosion and Slope Stability, Honolulu, Hawaii, May 7-11, 1984.

2395. Smith, R.B. and E.F. Wass. 1984. Preliminary assessment of impacts of two stumping operations on site productivity, interior British Columbia. In Proceedings of the 1983 Society of American Foresters National Convention, October 16-20, Portland, Oregon, pp. 247-251.

2396. Stanek, W. 1984. Ecotour of the Trans Canada Highway Kamloops-Golden. CFS, Minister of Supply and Services Canada. 20 pp.

2397. Teske, E.L. (ed.). 1984. Reports and publications — 1983. Can. For. Serv. Pac. For. Res. Cent., Inf. Rep. BC-X-252.

2398. Teske, E.L. (ed.). 1984. Program review — Pacific Forest Research Centre, 1983-84. Can. For. Res. Cent., Pac. For. Res. Cent.

PATHOLOGY

2399. Bloomberg, W.J. 1984. Surveying for root disease losses in British Columbia. Proc. IUFRO, Canberra, 1983, pp 359-371.

2400. Bloomberg, W.J. 1984. Computer models as tools for forest disease management. XVII Meeting, Insect and Disease Study Group, N. Am. For. Comm., Las Cruces, N.M. pp 1-21.

2401. Funk, A. 1983. Szczawinskia, a new genus of the lichen-forming Coelomycetes. Syesis 16: 85-88.

2402. Funk, A. 1984. *Endothiella aggregata* n. sp. (Phialostromatineae) on western conifers. Can. J. Bot. 62: 154-155.

2403. Garbutt, R.W. 1984. Foliage diseases of Western larch in British Columbia. PFRC Forest Pest Leaflet No. 71. 4 p.

2404. Hood, I. and D.J. Morrison. 1984. Incompatibility testing of *Armillaria* isolates in a wood substrate. Canadian Forestry Service Research Notes 4: 8-9.

2405. Hopkins, J.C. 1984. A rapid method for determining the tolerance of gray-mold isolates to benomyl. Canadian Forestry Service Research Notes 4(4): 53-54.

2406. Hunt, R.S. 1984. Inoculations of Scrophulariaceae with *Cronartium ribicola*. Can. J. Bot. 62(12): 2523-2524.

2407. Hunt, D.W.A., J.H. Borden, J.E. Rahe and H.S. Whitney. 1984. Nutrient-mediated germination of *Beauveria bassiana* conidia on the integument of the bark beetle *Dendroctonus ponderosae* (Col: Scol). J. Invert. Pathology 44: 304-314.

2408. Hunt, R.S. and H.J. O'Reilly. 1984. Evaluation of control of Lawson cypress root rot with resistant root stocks. Can. J. Plant Pathol. 6: 172-174.

2409. Hunt, R.S. and G.A. Van Sickle. 1984. Variation in susceptibility to sweet fern rust among *Pinus contorta* and *P. banksiana*. Can. J. For. Res. 14(5): 672-675.

2410. Locke, W., J.R. Sutherland, J.J. Dennis and J.C. Hopkins. 1984. *Colletotrichum gloeosporides* shoot blight of greenhouse — from western hemlock seedlings in B.C. Plant Disease 68: 62-64.

2411. Miller, G.E. 1984. Biological factors affecting *Contarinia oregonensis* (Diptera: Cecidomyiidae) infestations in Douglas-fir seed orchards on Vancouver Island, British Columbia. Environ. Entomol. 13: 873-877.

2412. Miller, G.E. and J.H. Borden. 1984. Reproductive behaviour of the Douglas-fir cone gall midge, *Contarinia oregonensis* (Diptera: Cecidomyiidae). Can. Ent. 116: 607-618.

2413. Morrison, D.J., A.J. Thomson, D. Chu, F.G. Peet, T.S. Sahota and U. Rink. 1984. Characterisation of *Armillaria* intersterility groups by isozyme patterns. *In* Proceedings of the Sixth International Conference on Root and Butt Rots of Forest Trees, Ed. G.A. Kile CSIRO, Melbourne. pp. 2-11.

2414. Sutherland, J.R., S.J. Hopkinson, and S.H. Farris. 1984. Inland spruce cone rust, *Chrysomyxa pirolata*, in *Pyrola asarifolia* and cones of *Picea glauca*, and morphology of the spore stages. Can. J. Bot. 62(11): 2441-2447.

2415. Sullivan, T.P., J.R. Sutherland, T.A.D. Woods, and D.S. Sullivan. 1984. Dissemination of the conifer seed fungus *Caloscypha fulgens* by small mammals. Can. J. For. Res. 14: 134-137.

2416. Sutherland, J.R. 1984. Pest management in Northwest bareroot nurseries. *In* Duryea, Mary L. and Thomas D. Landis (eds.). Forest Nursery Manual: Production of Bareroot Seedlings. Forest Research Laboratory, Oregon State University, Corvallis. 386 pp. Chapter 19: 203-210.

2417. Sutherland, J.R., T.A.D. Woods, and G.E. Miller. 1984. Effect of dimethoate, and oxydimeton-methyl insecticides and ferbam and potassium coconate fungicides on germination *in vitro* of Douglas-fir and white spruce pollen. Tree Planters' Notes, 35(1): 22-24.

2418. Thomson, A.J., F.G. Peet, T.S. Sahota, D.J. Morrison, A. Ibaraki and E.E. White. 1984. Digital analysis of iso-electric focussing patterns. Electrophoresis 5: 55-60.

2419. Thomson, A.J., R.B. Smith and R.I. Alfaro. 1984. Growth patterns in immature and mature western hemlock stands infected with dwarf mistletoe. Can. J. For. Res. 14: 518-522.

2420. Whitney, H.S., D.C. Ritchie, J.H. Borden, and A.J. Stock. 1984. The fungus *Beauveria bassiana* (Deuteromycotina: Hyphomycetaceae) in the western balsam bark beetle, *Dryocoetes confusus* (Coleoptera: Scolytidae). Can. Entomol. 116: 1419-1424.

2422. Whitney, H.S. and M.M.Z. Kharadly. 1984. Some results on low level microwave treatment of the mountain pine beetle and the darkling beetle, IEEEE. Trans. Microwave Theory Tech., Vol. MTT-32: 798-803.

REMOTE SENSING & MENSURATION

2423. Alfaro, R.I. and T.L. Shore. 1984. Color video tape to record forest defoliation. J. Ent. Soc. B.C. Note 81: 19.

2424. Alfaro, R.I., E. Wegwitz, A.D. Erickson and W.J. Pannekoek. 1984. A micro-computer based data reader and editor for the DIGIMIC Tree Ring Measuring System. Envir. Can., Can. For. Serv. Res. Notes 4: 30-31.

2425. Gimbarzevsky, Philip. 1984. Remote sensing in forest damage detection and appraisal — selected annotated bibliography. Can. For. Serv., Pac. For. Res. Cent., Inf. Rep. BC-X-253.

2426. Gimbarzevsky, Philip. 1984. Anaglyphic stereograms: preparation and viewing. Can. For. Serv., Pac. For. Res. Cent., Inf. Rep. BC-X-251.

2427. Lee, Y.J., R.I. Alfaro and G.A. Van Sickle. 1983. Tree-crown defoliation measurement from digitized photographs. Can. Jour. For. Res. 13(5): 956-961.

2428. Lee, Y.J. and R.W. McKelvey. 1984. Digitized small format aerial photography as a tool for measuring food consumption by trumpeter swans. Journal of Photog. Eng. and Remote Sensing 50(20): 215-219.

2429. Lee, Y.J. and E. Kvarv. 1983. Assessment of log debris using Landsat MSS data at Williston Lake, British Columbia. Can. J. Rem. Sensing 9(2): 111-124.

2430. Lee, Y.J. and M.N. Liu. 1984. Updating forest cover maps in Saskatchewan using Landsat digital data. Proceedings of the Tenth Anniversary International Remote Sensing Conference, Reading UK., p. 383-390.

2431. Manning, G.H., M.R.C. Massie and J. Rudd. 1984. Metric single-tree weight tables for the Yukon Territory. Can. For. Serv., Pac. For. Res. Cent., Info. Rep. BC-X-250.

2432. Tomlins, G.F. and Y.J. Lee. 1983. Remotely piloted aircraft — an inexpensive option for large scale aerial photography in forestry applications. Can. Jour. Remote Sensing 9(2): 76-85.

2433. Wallis, G.W. and Y.J. Lee. 1984. Detection of *Phellinus weirii* using large scale 70 mm aerial photography. Proceedings of the 6th International Conference on Root and Butt Rots of Forest Trees. IUFRO S2.06.01, CSIRO, Melbourne, Australia, p. 272-276.

2434. Wallis, G.W. and Y.J. Lee. 1984. Detection of root disease in coastal Douglas-fir stands using large scale 70-mm aerial photography. Can. J. For. Res. 14: 523-527.

SILVICULTURE

2435. Arnott, J.T. 1984. Photoperiodic control of container seedlings. *In* Proc. Forest Nursery Council Meeting, Coeur d'Alene, Idaho, August 6-9, 1984. USDA For. Serv. Rept.

2436. Arnott, J.T. and F.T. Pendl. 1984. High elevation species and stock type trials. *In* For. Res. Rev. 1982-83, B.C. Min. Forests, pp. 34-37.

2437. Barclay, H.J. and H. Brix. 1984. Effects of urea and ammonium nitrate fertilizer on growth of a young thinned and unthinned Douglas-fir stand. Can. J. For. Res. 14(6): 952-955.

2438. Baumgartner, D.M., R.G. Krebill, J.T. Arnott and G.F. Weetman. 1984. Lodgepole pine: the species and its management. Proceedings of symposium held May 8-10, 1984, Spokane, Washington and May 14-16, Vancouver, B.C. 381 pp.

2439. McMinn, R.G. 1984. Mechanical site treatment prescriptions should be based on site specific knowledge. Pages 21-24 in Proceedings of the CPPA/CFS Seminar on Mechanization of Silviculture. "Mechanization of Silviculture: Increasing Quality and Productivity", Monday, September 17, 1984, Thunder Bay, Ontario.

2440. McMinn, R.G. 1984. Performance of white spruce seedlings and transplants in an untreated, backlog clearcut. NSC news 3(2): 2-6.

2441. Thomson, A.J. and H.J. Barclay. 1984. Effects of thinning and urea fertilization on the distribution of area increment along the boles of Douglas-fir at Shawnigan Lake, British Columbia. Can. J. For. Res. 14(6): 879-884.

TREE BIOLOGY

2442. Edwards, D.G.W. 1984. The role of seeds and seed research in combating the exploitation of the world's forest resources. Seed Science and Tech. 12: 757-765.

2443. Edwards, D.G.W., G.E. Miller, F.T. Portlock and J.R. Sutherland. 1984. Tree seed research and certification, Pacific Forest Research Centre 1981-1982. Proc. 19th Canad. Tree Imp. Assoc. Mtg., Toronto, Part I: 210-215.

2444. White, E.E. and J.-E. Nilsson. 1984. Foliar terpene heritability in *Pinus contorta*. Silvae Genetica 33, 16-22.

2445. White, E.E. 1984. Mode of genetic control of monoterpenes in foliage of controlled crosses of *Pinus contorta*. Silvae Genetica 33, 115-119.

2446. White, E.E. and J.E. Nilsson. 1984. Genetic variation in resin canal frequency and relationship to terpene production in foliage of *Pinus contorta*. Silvae Genetica, 33, 79-84.